MEMORANDUM OF UNDERSTANDING
HARFORD COMMUNITY COLLEGE & TOWSON UNIVERSITY
March 26, 2018

Molecular Biology, Biochemistry, and Bioinformatics (MB3) – Molecular Biology
Concentration B.S. Degree

Harford Community College, Bel Air, Maryland, and Towson University, agree to follow the
articulation of courses outlined in the articulation (course equivalency) document, for
completion of requirements for the Bachelor of Science degree in Molecular Biology,
Biochemistry, and Bioinformatics (Attachment A), which is attached to, and incorporated by
reference into, this Memorandum of Understanding (MOU). The following principles guide the
operation of this MOU, with the requirements for transfer in specific curricula set forth in
Attachment A.

1. Towson University will accept a maximum number of 64 credits from Harford
Community College as outlined in the Attachment A. The number of transferable credits
specific to this program is reflected in Attachment A.

2. Students who have completed the Associate of Science Degree in the Biology program at
Harford Community College may transfer into Towson University’s Molecular Biology,
Biochemistry, and Bioinformatics: Molecular Biology concentration program with junior
standing provided that the student has completed all courses identified on Attachment A
(which is attached to, and incorporated by reference into, this MOU) with a cumulative
GPA of 2.00 or higher. Courses completed at Harford Community College with 300 or
400 level Towson University course equivalencies will transfer as lower-level credit but
will satisfy course content as indicated.

3. Only courses in which a grade of C (2.00) or better is earned will apply toward the major
at Towson University.

4. In accordance with the MHEC transfer policy pertaining to general education
requirements, Towson University will accept the completion of Harford Community
College’s general education requirements (GenEds) and students will be required to
complete courses at Towson University to satisfy the remaining University Core
requirements as shown in Attachment A.

5. Towson University recognizes college-level experiential learning gained through previous
work, military and/or volunteer service or life experience. Credit for prior learning may
also be established through course challenge or standardized credit by examination.

6. Harford Community College students transferring to Towson University will be given
every consideration for financial aid and will be eligible to compete for academic
scholarships upon entrance to Towson University subject to stated scholarship deadlines.
7. Both Harford Community College and Towson University agree to work together to facilitate the transfer of students from Harford Community College to Towson University to work cooperatively to insure the high quality of the programs at the respective institutions. Transfer of students will be in accordance with policies and procedures of both institutions, as they may be amended from time to time.

8. This MOU will be in effect initially for ten years, beginning spring 2018, with a review every two years by both parties. Any revisions the parties deem necessary must be evidenced in writing and signed by the authorized officials of each institution. The MOU may be terminated by either party for due cause and after adequate notice of not less than six months is given to the other party.

9. Towson University will establish procedures to provide information on the academic progress of Harford Community College students enrolled as part of this MOU.

10. This MOU, when signed, constitutes the entire agreement between the parties and supersedes all prior agreements and understandings between the parties respecting the matter hereof.

HARFORD COMMUNITY COLLEGE AND TOWSON UNIVERSITY

Dr. Steven Thomas
Vice President for Academic Affairs
Date 5/17/2018

Dr. Timothy Chandler
Provost and Vice-President for Academic Affairs
Date 6/1/18
# HARFORD COMMUNITY COLLEGE- Biology A.S. Degree

## TOWSON UNIVERSITY- Molecular Biology, Biochemistry and Bioinformatics (MB3) B.S. Degree - Molecular Biology Concentration

<table>
<thead>
<tr>
<th>COURSE #</th>
<th>COURSE TITLE</th>
<th>CRS.</th>
<th>TU EQUIVALENCY</th>
<th>CORE</th>
<th>COMMENTS</th>
<th>COURSE ID#</th>
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<tbody>
<tr>
<td>ENG 101</td>
<td>English Composition (GE) (grade of C or better)</td>
<td>3</td>
<td>TSEM 102 (WAIVED)</td>
<td>1.</td>
<td>Towson Seminar</td>
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<tr>
<td>MATH 109 OR MATH 203 *</td>
<td>Precalculus Mathematics (GM) OR Calculus I (GM)</td>
<td>4</td>
<td>ENGL 102</td>
<td>2.</td>
<td>English Composition</td>
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<tr>
<td>GH</td>
<td>Arts &amp; Humanities (GH)</td>
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<td>MATH 119</td>
<td>3.</td>
<td>Mathematics</td>
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<tr>
<td>CHEM 111</td>
<td>General Chemistry I (GL)</td>
<td>4</td>
<td>CHEM 131/131L</td>
<td>8.</td>
<td>Biological &amp; Physical Science</td>
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<td>MATH 203 OR BIO elect *</td>
<td>Calculus I (GM) OR BIOL program elective</td>
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<td>MATH 273</td>
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<td>Depends on Choice</td>
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<td>BIO 208</td>
<td>Genetics</td>
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<td>BIOL 200/200L</td>
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<td>Global Perspectives</td>
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<td>BIOL 202</td>
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<tr>
<td>PHYS 101 OR PHYS200/203</td>
<td>Introductory Physics I (GL) OR Gen Phys: Mechanics &amp; Particle Dynamics w/LAB (GL/GS)</td>
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<td>PHYS 211</td>
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<tr>
<td>PHYS 102 OR PHYS 204</td>
<td>Introductory Physics II (GL) OR Gen Phys: Vibrations, Waves, Heat, Electricity &amp; Magnetism (GL)</td>
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<td>PHYS 212</td>
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<td>CHEM 207</td>
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<td>PHYS ED ELECT</td>
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<td>Depends on choice.</td>
<td>15.</td>
<td>Ethical Issues.</td>
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**Total Program Requirements at Towson**

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<tr>
<td>27</td>
<td>Total CORE In Transfer</td>
<td>60</td>
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**Maximum Credits in Transfer**

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<tbody>
<tr>
<td>60</td>
<td>Total Program Requirements at Towson</td>
<td>64</td>
</tr>
</tbody>
</table>

### 64 Credit Maximum


*Students must complete Calculus at Harford Community College. If MATH 109 (Pre-Calculus) is required, students should take MATH 203 (Calculus) as their Program Elective. If MATH 109 (Pre-Calculus) is not required, students should take MATH 203 as their General Education math and choose any course from the list to satisfy program elective for the A.S. Biology degree. Students opting to take the Calculus-based physics sequence (PHYS 200/203 and PHYS 204) should choose MATH 204 as their program elective to satisfy the prerequisite for PHYS 204. Students may need to take additional elective credits at HCC depending on choice of Calculus and Program Elective to meet A.S. degree requirements.

**One GB or GH course must also satisfy Diversity requirement at HCC.**
HARFORD COMMUNITY COLLEGE- Biology A.S. Degree
TOWSON UNIVERSITY- Molecular Biology, Biochemistry and Bioinformatics (MB3) B.S. Degree – Molecular Biology Concentration

CORE REQUIREMENTS TO BE COMPLETED AT TOWSON 15 UNITS

CORE 4: Creativity and Creative Development (3 UNITS)
CORE 9: Advanced Writing Seminar (3 UNITS)
CORE 10: Metropolitan Studies (3 UNITS)
CORE 12: Global Perspectives (3 UNITS)
CORE 14: Ethical Issues and Perspectives (3 UNITS)

PROGRAM REQUIREMENTS TO BE COMPLETED AT TOWSON 32-33 UNITS

REQUIRED COURSES: 23 UNITS

BIOL 409 MOLECULAR BIOLOGY (4 UNITS)
CHEM 351 BIOCHEMISTRY I (3 UNITS)
MATH 237 ELEMENTARY BIOSTATISTICS (4 UNITS)
MBBB201 PROGRAMMING FOR BIOLOGISTS OR (4 UNITS)
COSC 175 GEN COMPUTER SCIENCE (4 UNITS)
MBBB 301 INTRO TO BIOINFORMATICS (4 UNITS)
MBBB 493 SEMINAR IN BIOETHICS (1 UNIT)

SELECT ONE OF THE FOLLOWING: (3 UNITS)
MBBB 495 CAPSTONE PROJECT*
BIOL 491 ELECTIVE IN INDEPENDENT RESEARCH*
CHEM 491 INTRODUCTION TO RESEARCH IN CHEMISTRY I*
COSC 495 INDEPENDENT STUDY*
*COURSES MAY BE REPEATED FOR A TOTAL OF 6 UNITS TOWARD THE MAJOR

COURSES FOR MOLECULAR BIOLOGY CONCENTRATION: 9-10 UNITS

BIOL 408 CELL BIOLOGY (4 UNITS)

SELECT ONE OF THE FOLLOWING LABORATORY COURSES: (2 UNITS)
BIOL 312 GENETICS LABORATORY
BIOL 410 MOLECULAR BIOLOGY LABORATORY
BIOL 412 CELL BIOLOGY LABORATORY

BIOLOGY UPPER LEVEL ELECTIVE (3-4 UNITS)
HARFORD COMMUNITY COLLEGE- Biology A.S. Degree
TOWSON UNIVERSITY- Molecular Biology, Biochemistry and Bioinformatics (MB3) B.S. Degree – Molecular Biology Concentration

Additional Bachelor Degree Requirements
- A C (2.0) or higher is required in all major and minor courses
- A cumulative grade point average (GPA) of 2.0 is required
- 32 units of the bachelor’s degree must be completed at the upper level (courses numbered 300 or above)

Total Credits to B.S. Degree (120)
Harford Biology A.S. Degree 60
Completion of Core at TU 15
Completion of Major Requirements at TU 32-33
Elective Credits at TU 12-13